Building safety—why is a window important?
Jim Evetts, Building Official

May 2012 has been proclaimed Building Safety Month. By doing so, Charlotte County has joined hundreds of jurisdictions across the nation in highlighting the work done by inspectors, plans examiners, contractors and other building code professionals, to keep the population safe.

Every structure, and every component of that structure, goes through many checks and balances to ensure that it meets the required standards to be part of your home. This process does not begin with the local building department—they are usually the last part of the process.

Let's look at a simple window. A window may be decorative, something to make our homes light and airy—but to a building code professional a window is a weak point of a structure and a point that must be protected to prevent complete structural failure.

Think of a building as a system, a group of components, that are tied together to create the building. This means that the building itself is only as strong as its weakest component.

In Florida, the biggest natural threat to a structure is the high winds caused by a hurricane. Not only does the wind itself have strength, but as the wind blows it drives debris, often through an unprotected window.

But what really happens if a window were to break during a storm, doesn't it just mean that the wind and rain will come in the house? The answer is no, the reality could be much worse.

During a hurricane, wind moves around the home, creating different external pressures. The fast moving wind outside combined with the shape of a roof reduces the pressure above the roof. The wind is essentially trying to pull the roof away from the house. If the home is constructed properly, and no component fails, the design of the home should be strong enough to stop the roof from flying away.

But, if one component of the home fails, such as a window, the wind can get into the home. When it gets in, it has nowhere else to go so the pressure builds up inside the home—like blowing up a balloon—only a house cannot expand as the pressure grows. The increased pressure inside pushing the roof up, combined with the decreased pressure outside pulling the roof up causes a reaction similar to what makes a plane fly and the roof lifts away from the home.

How do we know that a window design is enough to withstand a storm? For that we must look to the window manufacturers and a process called the Florida Product Approval process.

When a manufacturer designs a window, they must apply for approval. Only approved products can be installed in Florida. First, a technical review takes data from laboratory testing, evaluation engineers and other design professionals to ensure that the design of the window meets all requirements of the Florida Building Code. The second part is quality assurance looking to make certain the manufacturer can ensure the quality of the product being sold. Only if both of these items are deemed sufficient is the applicable approval given.

How do you know that the approved window is right for you? That's where your local building department comes in. When a permit is applied for, the plans examiner will consider where you are

located— choosing a product depends on both the wind zone your home is located in, and the surrounding landscape. Essentially, the closer to water, and the flatter the surrounding land, the stronger the design needs to be. Our Plans Examiner will then check the Product Approval number to make sure it is valid and is the correct type of window for your specific location. They will also check whether you will need hurricane shutters and if so, will not allow the permit to be issued before the shutter information is provided.

When our inspectors come to check the job, they look again at the Product Approval—the approval details how the window should be installed and they ensure these instructions have been followed. They also make sure that the window matches what was originally specified and that it is marked as being the correct window by a sticker affixed to the frame.

This is the same process that is followed for many components of your home, from roof shingles and doors and windows, to solar panels on the roof. All require the same checks before they can be installed. So, building code enforcement is much bigger than just your local building department. The process starts long before your permit is applied for, and each and every component that goes into the construction of your home is checked along the way to ensure for you, the homeowner, that it is enough to hold up to the test of Florida's extreme weather.